Canis Minor, in the east, the head and shoulders of Orion, Taurus, Aries, Pegasus, and Aquila. Pressure, 29.89; temperature, —38.0° F.; wind, northeast at 20 miles per hour.

February 2, 1899, 5 *p. m.*—Aurora, light beams ascending from Canis Minor, in the east-northeast, crossing Gemini, and continuing thence as a light gold wire band across Lynx, Ursa Major, the tail of Draco, Ursa Minor, the body of Draco, Cepheus, Cygnus, and Lyra to Aquila. Pressure, 29.84; temperature, —41.0° F.; wind, north at 27 miles per hour.

February, 5, 1899, 3 *p. m.*—Aurora, springing from Leo Major, (in the east), and crossing Leo Minor, the forepaws and head of Ursa Major, Lynx, Camelopardus, Cassiopeia, and Cygnus. Pressure, 29.78; temperature, —11.5 F.; wind, east at 26.2 miles per hour.

February 8, 1899, 7 *p. m.*—Aurora, a golden arch springing from Leo Major, in the east-northeast, crossing the forepaws and head of Ursa Major, Lynx, Camelopardus, Cassiopeia, Cepheus, and Lacerta, the lower wing of Cygnus and Vulpecula, and terminating upon Aquila, in the west. Pressure, 29.25; temperature, —22.0° F.; wind, north, light.

February 9, 1899, 5 *p. m.*—Aurora, a light streamer arch from Leo Major, in the east, and crossing the constellations, thence through the zenith westward. Pressure, 29.64; temperature, —32.5 F.; wind, southwest, very light.

February 15, 1899, 4 *to* 7 *p. m.*—Aurora, plainly visible in the east and south at 4 p. m., but veiled by fog. Stars invisible. 7 p. m., bright golden arcs and arches extending from Leo Major, in the east, across Cancer, Gemini, Auriga, Taurus, Aries, Pegasus, etc., westward to Aquila. Display invisible by reason of fog or heavy mist at times. Pressure, 30.20 to 30.22; temperature, —6.0° to —10.0° F.; wind, north at 9.5 miles per hour.

February 16, 1899, 8 *p. m.*—Aurora, very active display of yellow arcs and patches covering the heavens from the eastern to the western horizon for a space of about 90° in width and visible through a murky sky and light fall of snow. Occasionally stars visible. Pressure, 30.18; temperature, —6.0° F.; wind, north, light.

February 23, 1899, 9 *p. m.*—Aurora, golden arcs extending from the feet of Bootes in the east-northeast across Leo Major, Cancer, the feet of Gemini, and the belt of Orion to Cetus in the southwest. Wave like motion from west to east. Pressure, 30 17; temperature, —30.7° F.; wind, northeast, light.

March 2, 1899, 8 *p. m.*—Aurora, a faint silvery arc springing from Leo Major (in the east-southeast), and crossing Leo Minor, Lynx, and Camelopardus, to the feet of Cassiopeia. Pressure, 30.35; temperature, —35° F.; wind, north at 10 miles per hour.

March 3, 1899, 8 *p. m.*—Aurora, an intense display of coronal type, covering the heavens from the belt of Orion in the south-southwest to the lower limbs of Hercules in the north, and from Virgo in the east to Pegasus and Pisces in the west. Rapid movement of streamers and curtains from west to east and from south to north. Delicate tinting of the display in all its parts, but particularly striking along the edges of the enveloping or outer curtains. Central or zenithal portion less tenuous than the parts nearer the horizon. Pressure, 30.30; temperature, —41° F.; wind, north, light.

March 10, 1899, 11 *p. m.*—Aurora, the heavens from the feet of Bootes in the east to the head of Cetus in the west; from the paws of Leo Major in the south to Pegasus in the north, curtained, festooned, tapestried, arched, and pillared in gold and silver, in purple and lilac, and red-green, all waving, trembling, tumbling, and leaping in every imaginable direction. And yet, why, at the same time, that motionless shaft upon the head of Taurus or that quiescent arc amidst a vortex of motion? Pressure, 29.75; temperature, —32.0° F.; wind, west, very light.

March 11, 1899, 9:45 *p. m.*—Aurora, yellowish bands, extending from east to west across the space between the back of Leo Major, in the south, and Polaris. The sky much clouded and a minute description of the display impossible. Pressure, 29.95; temperature, —24.0° F.; wind, north, light.

March 13, 1899, 11 *p. m. to* 12 *midnight.*—Aurora, pink-tinted arcs and dancing shafts upon Gemini and Auriga, in the southwest. 12 midnight, golden haze upon Leo Minor. Pressure, 30.28; temperature, —33.0° to 33.0° F.; wind, north, light.

MEXICAN CLIMATOLOGICAL DATA.

Through the kind cooperation of Señor Manuel E. Pastrana, Director of the Central Meteorologic-Magnetic Observatory, the monthly summaries of Mexican data are now communicated in manuscript, in advance of their publication in the Boletin Mensual. An abstract, translated into English measures, is here given, in continuation of the similar tables published in the MONTHLY WEATHER REVIEW since 1896. The barometric means have not been reduced to standard gravity, but this correction will be given at some future date when the pressures are published in our Chart IV.

Mexican data for March, 1901.

Stations.	Altitude.	Mean barometer.	Temperature.			Relative humidity.	Precipitation.	Prevailing direction.	
			Max.	Min.	Mean.			Wind.	Cloud.
	Feet.	*Inch.*	° *F.*	° *F.*	° *F.*	%	*Inch.*		
Durango (Seminario).	6,243	24.02	88.2	35.6	59.4	38	.....	sw.	w.
Leon (Guanajuato)...	5,934	24.30	85.5	34.0	63.0	37	.....	nw.	sw.
Linares (Nuevo Leon).	1,188	28.64	101.3	42.8	70 5	51	T.	s.	s , w.
Mazatlan	25	29.95	80.8	63.9	72.1	76	....	nw.	sw.
Merida	50	29.98	92.8	57.0	75.6	68	0.08	ne.	.....
Mexico (Obs. Cent.)..	7,472	23.06	84.2	35.6	60.6	37	0.01	sw.	....
Morelia (Seminario)..	6,401	23.96	83.0	41.4	59.9	47	0.03	s.	w.
Puebla (Col. Cat.)...	7,112	23.39	82.4	38.3	62.6	42	T.	e.	ssw.
Saltillo (Col. S. Juan).	5,399	24.75	86.0	32.0	61.7	69	.....	s.	s.
San Luis Potosi.....	6,201	24.10	86.2	39.6	62.8	54	.....	sw.	w.
Zapotlan (Seminario)	5,078	25.10	90.7	39.2	64.4	39	0.03	sse.	w.

RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. PHILLIPS, in charge of Library, etc.

The subjoined list of titles has been selected from the contents of the periodicals and serials recently received in the library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau:

Comptes Rendus. Paris. Tome 132.

Angot, A. Sur la variation diurne de la déclinaison magnétique. P. 317.

Symons's Meteorological Magazine. London. Vol. 36.

Curtis, R. H. Pressure of the Wind. P. 2.

Gaea. Leipzig. 37 *Jahrg.*

Elster, J. und Geitel, H. Beiträge zur Kenntnis der atmosphärischen Elektricität. P. 142.

Wollny, E. Ueber den Einfluss der Pflanzendecken auf die Wasserführung der Flusse. P. 162.

Memorias y Revista, Sociedad Cientifica "Antonio Alzate." Mexico. Tomo 15.

Morena y Anda. Correcciones que deben aplicarse á la media diurna de la temperatura deducida de pocas observaciones. Pp. 5–11.

Geographische Zeitschrift. Leipzig. 7 *Jahrg.*

Hann, J. Wissenschaftliche Luftfahrten. Pp. 121–140.

Nature. London. Vol. 63.

Judd, J. W. Recent "Blood Rains." Pp. 514–515.

Bryan, G. H. History and Progress of Aerial Locomotion. Pp. 526–527.

Hayward, R. B. Audibility of the Sound of Firing on February 1. Pp. 538–540.

Buchanan, J. Y. Solar Calorimeter depending on the rate of generation of Steam. Pp. 548–551.

Science. New York. N. S. Vol. 13.
Bigelow, F. H. Clayton's Eclipse Cyclone and the Diurnal Cyclones. Pp. 589-591.
American Journal of Science. New Haven. 4th series. Vol. 11.
Hallock, William. Very on Atmospheric Radiation. Pp. 230-234.
Scottish Geographical Magazine. Edinburgh. Vol. 17..
—— British Rainfall Organization. Pp. 194-195.
L'Aérophile. Paris. 9me Année.
Tatin, Victor. Étude sur les Aéronauts. Pp. 44-53.
Annalen der Physik. Leipzig. Vierte folge. Band 4.
Naber, H. A. Das Luftbarometer. Pp. 815-827.
Himmel und Erde. Berlin. 13 *Jahrg.*
Assmann, Richard. Die modernen Methoden zur Erforschung der Atmosphäre mittels des Luftballons und Drachens. P. 306-319.
Annuaire de la Société Météorologique de France. Paris. 49me année.
Angot, A. La variation diurne de la déclinaison magnétique et ses relations avec l'activité solaire. Pp. 19-26.

OBSERVATIONS AT HONOLULU.

Through the kind cooperation of Mr. Curtis J. Lyons, Meteorologist to the Government Survey, the monthly report of meteorological conditions at Honolulu is now made partly in accordance with the new form, No. 1040, and the arrangement of the columns, therefore, differs from those previously published.

Meteorological Observations at Honolulu, March, 1901.

The station is at 21° 18′ N., 157° 50′ W.
Hawaiian standard time is 10h 30m slow of Greenwich time. Honolulu local mean time is 10h 31m slow of Greenwich.
Pressure is corrected for temperature and reduced to sea level, and the gravity correction, −0.06, has been applied.
The average direction and force of the wind and the average cloudiness for the whole day are given unless they have varied more than usual, in which case the extremes are given. The scale of wind force is 0 to 12, or Beaufort scale. Two directions of wind, or values of wind force, or amounts of cloudiness, connected by a dash, indicate change from one to the other.
The rainfall for twenty-four hours is measured at 9 a. m. local, or 7.31 p. m., Greenwich time, on the respective dates.
The rain gage, 8 inches in diameter, is 1 foot above ground. Thermometer, 9 feet above ground. Ground is 43 feet, and the barometer 50 feet above sea level.

Date.	Pressure at sea level.	Temperature.		During twenty-four hours preceding 1 p. m., Greenwich time, or 2.29 a. m., Honolulu time.									Total rainfall at 9 a. m., local time.
				Temperature.		Means.		Wind.			Sea-level pressures.		
		Dry bulb.	Wet bulb.	Maximum.	Minimum.	Dew-point.	Relative humidity.	Prevailing direction.	Force.	Average cloudiness.	Maximum.	Minimum.	
	*	†	†			‡	‡		§				
1	30.02	72	67	77	63	.....	.....	ne.	2-0	10-0	30.11	30.00	0.01
2	29.89	74	71	81	66	65.3	72	e-sw.	2	4-10	30.02	29.90	0.63
3	29.98	69	62	75	68	65.0	83	w-e	3-0	10-4	29.99	29.86	0.01
4	29.97	70	63	74	64	59.0	66	ne.	3-4	4	30 05	29.94	0.01
5	30.06	69	62	75	68	59.0	65	ne.	5-2	8-2	30.10	30.00	0.00
6	30.02	70	66	74	69	61.7	73	ne.	5-6	7	30.10	29.99	0.48
7	30.06	72	67	76	69	64.7	77	ne.	5-6	8	30.12	29.97	0.03
8	30.09	72	65.7	77	71	63.5	72	ne.	4-2	7-10	30.15	30.08	0.00
9	30.08	69	66.5	76	72	63.3	70	ne.	4	7	30.16	30.08	0.15
10	30.02	70	66	76	68	64.3	82	ne.	3	8	30.10	30.02	0.47
11	30.01	71	64.5	76	69	63.3	74	ne.	4	6	30.06	29.98	0.15
12	30.02a	71	66 5	78	71	63.3	72	ne.	3	5	30.08	29.96	0.11
13	30.01	67	64.5	78	70	64.0	73	ne.	3	3	30.07	29.96	0.02
14	30 00	68	66.8	79	67	64.7	76	ne.	3	3	30.05	29.96	0.40
15	30.02	71	65	77	66	66.3	83	ne.	3	5	20.06	29.96	0.15
16	30.03	70	65	76	70	63.3	73	ene.	3	2	30.09	29.99	0.01
17	30.04	65	64	78	69	64.0	78	ne.	3-1	2	30.08	30.00	0.01
18	30.07	71	65	79	64	63.5	77	ne.	3-4	3-9	30.10	30.00	0.13
19	30.10a	71	64	76	68	63.3	75	ne.	3-5	5	30.15	30.04	0.57
20	30.09	69	66	75	67	61.3	68	ne.	4	8	30.16	30.06	0.33
21	30.07	71	64	78	68	64.0	75	ne.	5	5	30.16	30.06	0.01
22	30.03	70	64	76	69	60.5	65	ne.	4	3	30.13	30.02	0.01
23	29.96	70	67.5	77	69	62.0	68	ne.	3	3	30.06	29.94	0.02
24	29.95	70	68.7	80	70	65.5	74	ne	3	3	30.02	29.93	0.32
25	30.04	72	68.5	80	69	69.0	82	ese.	0-4	6	30.06	29.97	0.00
26	30.04	68	66.5	80	70	68.7	80	s.	0-1	6	30 09	30.02	0.03
27	30.02	70	65	79	67	65.3	77	nne.	2-4	8	30.10	30.01	0.00
28	29.96	62	60.7	75	70	60.5	70	nne.	4-2	7-3	30.05	29.96	0.00
29	29.86	65	61.5	76	60	60.7	75	ne.	2	6-0	29.98	29.88	0.02
30	29.92	65	64.3	80	60	63.5	76	s-e.	2	4	29.97	29.87	0.05
31	29.97	67	65.5	83	64	65.5	74	sw-ne.	1	2	29.99	29.87	0.00
Sums.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.12
Means.	30.013	69.4	65.3	77.5	67.7	63.4	74.0	.....	3.0	5.2	30.078	29.975	.....
Departure..	+.036	.....	.....	.....	.....	+1.9	+1.5	.....	.....	+0.6	.....	.....	+0.82

Mean temperature for March, 1901 (6 + 2 + 9) ÷ 3 = 72.5; normal is 71.5. Mean pressure for March, 1901 (9 + 3) ÷ 2 = 30.023; normal is 29.987.
*This pressure is as recorded at 1 p. m., Greenwich time. †These temperatures are observed at 6 a. m., local, or 4.31 p. m., Greenwich time. ‡These values are the means of (6 + 9 + 2 + 9) ÷ 4. §Beaufort scale. aValues interpolated.

CLIMATOLOGY OF COSTA RICA.

Communicated by H. PITTIER, Director, Physical Geographic Institute.

TABLE 1.—*Hourly observations at the Observatory, San Jose de Costa Rica, during March,* 1901.

Hours.	Pressure.		Temperature.		Relative humidity.		Rainfall.		
	Observed, 1901.	Normal, 1889-1900.	Observed, 1901.	Normal, 1889-1900.	Observed, 1901.	Normal, 1889-1900.	Observed, 1901.	Normal, 1889-1900.	Duration, 1901.
	660+ *Mm.*	660+ *Mm.*	° *C.*	° *C.*	%	%	*Mm.*	*Mm.*	*Hrs.*
1 a. m	4.62	3.84	17.06	16.64	79	84	0.0	0.1	0.00
2 a. m	4.27	3.42	16.75	16.45	80	84	0.0	0.1	0.00
3 a. m	4.13	3.20	16 48	12.25	80	85	0.0	0.0	0.00
4 a. m	4.13	3.18	16.24	16.11	80	85	0.0	0.0	0.00
5 a. m	4.30	3.40	16.01	16.01	81	84	0.0	0.0	0.00
6 a. m	4.62	3.82	15.29	15.93	80	84	0.0	0.0	0.00
7 a. m	4.94	4.27	17.05	16.99	75	81	0.0	0.0	0.00
8 a. m	5.21	4.63	19.36	18.98	67	71	0.0	0.0	0.00
9 a. m	5.43	4.79	21.72	21.52	59	64	0.0	0.0	0.00
10 a. m	5.48	4.66	23.89	23.77	54	57	0.0	0.0	0.00
11 a. m	5.19	4.37	25.05	25.10	50	54	0.0	0.0	0.00
12 m	4.72	3.94	26.15	26.01	48	52	0.0	0.0	0.00
1 p. m	4.11	3.37	26.43	26.48	48	51	0.0	0.1	0.00
2 p. m	3.62	2.78	26.09	25.87	49	53	0.0	1.1	0.00
3 p. m	3.23	2.47	25.11	24.58	54	57	0.0	1.2	0.00
4 p. m	3.16	2.43	23.25	22.90	60	62	0.0	2.3	0.00
5 p. m	3.35	2.63	21.48	21.61	66	68	0.0	1.8	0.00
6 p. m	3.70	3.03	20.04	19.85	73	75	0.0	1.3	0.00
7 p. m	4.14	3.53	19.26	18.79	77	79	0.0	1.4	0.00
8 p. m	4.52	3.99	18.85	18.33	77	81	4.4	0.8	1.00
9 p. m	4.86	4.34	18.26	17.85	79	82	8.6	0.6	1.00
10 p. m	5.08	4.56	17.85	17.42	80	83	11.4	0.9	1.00
11 p. m	5.12	4.57	17.56	17.17	80	84	0.0	0.3	0.00
Midnight	4.88	4.30	17.25	16.91	80	84	0.0	0.5	0.00
Mean	4.45	3.72	20.13	19.87	69	73	.....	.....	.....
Minimum	661.40	659.98	12.2	9.9	.....	.....	.....	.....	.....
Maximum	668.60	667.22	30.8	32.6	.....	.....	11.4	2.3	.....
Total	.....	.....	.....	.....	.....	.....	24.4	14.2	3.00

REMARKS.—The barometer is 1,169 meters above sea level. Readings are corrected for gravity, temperature, and instrumental error. The dry and wet bulb thermometers are 1.5 meters above ground and corrected for instrumental errors. The hourly readings for pressure, wet and dry bulb thermometers, are obtained by means of Richard registering instruments, checked by direct observations every three hours from 7 a. m. to 10 p. m. The hourly rainfall is as given by Hottinger's self-register, checked once a day. The standard rain gage is 1.5 meters above ground.

TABLE 2.

Time.	Sunshine.		Cloudiness observed, 1901.	Temperature of the soil at depth of—				
	Observed, 1901.	Normal, 1889-1.00.		0.15 *m.*	0.30 *m.*	0.60 *m.*	1.20 *m.*	3.00 *m.*
	Hours.	*Hours.*	%	° *C.*	° *C.*	° *C.*	° *C.*	° *C.*
7 a. m	7.92	12.94	28	21.28	21.76	21.98	20.95	.....
8 a. m	25.69	23.80						
9 a. m	23.81	23.77						
10 a. m	25.35	22.73	41	21.65	21.78	22.00	21.01	.....
11 a. m	23.79	22.25						
12 m	22.54	21.78						
1 p. m	20.91	22.07	51	22.56	22.11	22.02	21.05	.....
2 p. m	21.55	22.04						
3 p. m	22.94	20.74						
4 p. m	20.03	17.64	63	22.87	22.34	22.07	20.95	.....
5 p. m	13.69	12.90						
6 p. m	6.31	4.73						
7 p. m	.....	.....	48	22.55	22.32	22.03	20.94	.....
8 p. m	.....	.....						
9 p. m	.....	.....						
10 p. m	.....	.....	30	22.16	22.19	21.98	20.94	.....
11 p. m	.....	.....						
Midnight	.....	.....						
Mean	.....	.....	44	22.17	22.10	22.02	20.99	20.74
Total	234.53	227.98	.....	.....	.....	.....	.....	.....

Notes on the weather.—During the first fortnight the weather was normal for the season, although very dusty and close. The night from 16th to 17th was stormy, with rather low temperature and high pressure. The strong northeast wind continued blowing from the 17th to 21st. On the 23d a decided change was noted in the higher currents of the atmos-